



AGFA AKTIENGESellschaft

AGFA PHOTOVERKAUF

LEVERKUSEN-BAYERWERK

Telegrams: *Agfaphoto Leverkusen*

Telephone: *Leverkusen 35 51*

Teleprinter: *Bayerleverkusen 8-510 881*

Preface

These notes give details of Agfa products available at the time of going to press and the technical details quoted have been made as concise as possible. They relate to the state of affairs as at April 1961.

Contents

Cameras and accessories	4
Negative materials	11
Isopan sheet films	11
Isopan roll films.	13
Isopan miniature films	15
Papers	17
Paper types	17
Properties.	19
Darkroom lighting	21
Storage	21
Photographic chemicals	25
Developers	25
Fixing baths	27
Auxiliary chemicals	28
Chemicals for compounding solutions	31
Formulary	32
Agfacolor photography	38
Negative materials	38
Positive materials	41
Agfacolor developers and fixing agents	42
Agfacolor accessories	46
Laboratory equipment and accessories	46
Conversion table of emulsion speed systems	54
Conversion table for thermometric scales	55
Agfa Recording Tape	58

Agfa 6×9 cameras

Agfa Clack, Agfa Meniscus

Agfa 6×6 cameras

Agfa Click I, Agfa Meniscus

Agfa Click II, Agfa Achromat 8.8

Agfa Isola I, Agfa Meniscus

Agfa Isola II, Agfa Agnar 6.3, Singlo 2 shutter

Agfa 4×4 cameras

Agfa Isoly, Agfa Meniscus

Agfa Isoly I, Agfa Achromat 8

**Agfa Isoly II, Agfa Color Agnar 6.3
Singlo 2 shutter**

**Agfa Isoly III, Agfa Color Apotar 3.9
Pronto shutter**

Agfa 24×36 cameras

**Agfa Silette with large viewfinder,
Agfa Color Agnar 2.8, Vario shutter**

**Agfa Silette with luminous frame viewfinder,
Agfa Color Agnar 2.8, Pronto shutter**

**Agfa Super Silette LK with coupled rangefinder
and coupled exposure meter, Agfa Color
Apotar 2.8, Pronto LK shutter**

**Agfa Super Silette Automatic with luminous frame
viewfinder, viewfinder exposure control and
coupled rangefinder, Agfa Color Solinar 2.8,
Prontor SLK shutter**

Agfa 24 × 36 reflex cameras

Agfa Flexilette twin-lens reflex camera, Agfa Color Apotar 2.8, Prontor special shutter

Agfa Colorflex I with waist-level hood viewfinder and automatic pre-set iris diaphragm, exposure meter and split-image rangefinder, Agfa Color Apotar 2.8/50, Prontor Reflex shutter

Agfa Colorflex II with prism viewfinder and automatic pre-set iris diaphragm, exposure meter and split-image rangefinder, Agfa Color Apotar 2.8/50, Prontor Reflex shutter

Agfa Ambiflex for interchangeable lenses, automatic pre-set iris diaphragm, depth of field indicator, automatic exposure control and split-image rangefinder

Agfa Ambiflex I with waist-level hood viewfinder, Agfa Color Solinar 2.8/50, Prontor Reflex shutter

Agfa Ambiflex II with prism viewfinder, Agfa Color Solinar 2.8/50, Prontor Reflex shutter

Agfa Ambiflex III with prism viewfinder, Agfa Color Solagon 2.0/55, Prontor Reflex shutter

Agfa Color Solinar 2.8/50 mm

Agfa Color Solagon 2.0/55 mm

Agfa Color Ambion 3.4/35 mm

Agfa Color Telinear 3.4/90 mm

Agfa Color Telinear 4.0/135 mm

Fully automatic miniature cameras with magic button

Agfa Optima I, Agfa Color Agnar 2.8/45, Prontor Lux shutter

Agfa Optima II, Agfa Color Apotar 2.8, Pronto shutter

Agfa Optima III, Agfa Color Apotar 2.8, Compur shutter

Agfa Optima IIIS, Agfa Color Apotar 2.8, Compur shutter with coupled rangefinder

Agfa Optima Reflex, Agfa Color Apotar 2.8, Special shutter

Agfa Optima Electric, with automatic transport and coupled rangefinder, Agfa Color Solinar 2.8/50 mm, Compur shutter

Transparency viewers, magnifiers, prism binoculars

Agfa Gucki 3D, transparency viewer

Agfa Lupe 8×, magnifier

Agfa Combi-Lupe 3+6 = 9

Agfa prism binocular 10×40

Agfa monocular 8×30

Camera accessories

Agfa filters, light yellow, medium yellow, green-yellow, orange-red, UV, R 1.5

Agfa lens hoods

Leather case for two filters and lens hood

Supplementary lenses for close-ups

Agfa Natarix close-up attachment

Agfa Proximeter I and II close-up attachments for Optima IIIS

Agfa Lucimeter S, weathermatic exposure meter
Agfa Lucimat, automatic exposure meter
Agfa ever-ready cases
Agfa viewfinder close-up attachments

Daylight developing tanks

Agfa Rondinax 60 for 120 roll film
Agfa Rondinax 35 U for miniature film
Agfa Rondix 35 for miniature film

Flash equipment

Agfa Clibo Flashgun
Agfa Isoly Flashgun
Agfa Isi Flashgun
Agfalux pocket flashgun
Zip cases

Agfa Still Projectors for 2 x 2 in. slides

Agfa CP 44 with Agfa Agomar 85 mm
Carrying case for Agfa CP 44
Agfa CP 44 V with fan, Agfa Agomar 85 mm
Agfa Diamator H semi-automatic slide projector
with Agfa Agomar 2.8/85 mm
Carrying case for Diamator H
Agfa Diamator M fully automatic slide projector
with Agfa Agomar 2.5/85 mm or 100 mm.
Carrying case for Diamator M
Automatic contact apparatus for Diamator M
Magazines for 30 and 50 slides
Telepiff supersonic remote-control unit

Agfa Still Projectors for $2\frac{3}{4} \times 2\frac{3}{4}$ in. slides

Agfa CP 66 with Agfa Agomar 150 mm
Carrying case for Agfa CP 66

Agfacolor Transparency Frames, 2×2 in. for
 24×36 mm., 38×38 mm. and 24×24 mm.
miniature film sizes. Thin glass frames for
cardboard mounted transparencies up to
 38×38 mm.

Agfacolor Transparency Frames, $2\frac{3}{4} \times 2\frac{3}{4}$ in. for
 $2\frac{1}{4} \times 2\frac{1}{4}$ and $1\frac{3}{4} \times 2\frac{1}{4}$ or $1\frac{7}{16} \times 2\frac{1}{2}$ formats

Agfacolor Transparency Frames K
Plastic transparency frames 24×36 mm

Agfacolor Transparency Frames W
Plastic frames for interchanging transparen-
cies 24×36 mm.

Agfa optical equipment

Includes lenses of different focal lengths and speeds
No. of elements

Agfa Meniscus	1
Agfa Color Agnar	3
Agfa Color Apotar	3
Agfa Color Solinar	4

Interchangeable lenses

	No. of elements
Agfa Color Ambion 3.4/35	5
Agfa Color Solinar 2.8/50	4
Agfa Color Solagon 2.0/55	6
Agfa Color Telinear 3.4/90	5
Agfa Color Telinear 4.0/135	5

Lenses for cine cameras and projectors

	No. of elements
Agfa Kine Anastigmat 2.5/11	3
Agfa Movexar 1.9/13	4
Agfa Movestar 1.9/12.5	4
Agfa Movenar 1.4/20	4

Lenses for still projectors

	No. of elements
Agfa Agomar 85 mm.	3
Agfa Agomar 100 mm.	3

Special lenses for enlarging

	No. of elements
Agfa Magnolar 4.5/60	5
Agfa Magnolar 4.5/105	5
Agfa condenser lenses	
Agfa viewfinder lenses	
Agfa rangefinders	

Agfa narrow gauge cine apparatus

Agfa Movex Reflex, fully automatic 8 mm. double-run reflex camera with universal reflex viewfinder, Agfa Movestar 1.8/13 mm. Additional Variogon 1.8/7.5—37.5 mm. zoom lens, 5 filming speeds

Agfa Movex Automatic

Fully automatic exposure control, Movestar 1.9/12.5 mm. focusing from 7½ in. to infinity, fixed focus setting, for double-8 spools

Accessories:

Telelongar (telephoto attachment) with leather case
Curtar (wide-angle attachment) with leather case
Titler, yellow filters, neutral density filters,
UV filters, lens hood, ever-ready case

Agfa Movector F 8 T with built-in sound coupler,
Movenar 1.4/20 mm.

Agfa Sonector 8
8 mm. projector for sound synchronisation
with stripe or tape recorder, Movenar
1.4/20 mm.
Case for Agfa Sonector 8

Agfa Sonector-Phon, sound synchronisation unit
for Sonector 8
Lower part of Sonector case to take Sonec-
tor-Phon

Agfa narrow gauge cine films

for 8 mm. cine cameras

Agfa Isopan F Reversal Film 15° DIN

Agfa Isopan ISS Reversal Film 19° DIN

Agfacolor Reversal Film CT 13 for daylight

Agfacolor Reversal Film CK 16 for artificial light,
in 33 ft. Movex 8 cassettes, 25 ft. double-8
spools

for 16 mm. cine cameras

Agfa Isopan F Reversal Film 15° DIN

Agfa Isopan ISS Reversal Film 19° DIN

Agfacolor Reversal Film CT 13 for daylight

Agfacolor Reversal Film CK 16 for artificial light
in daylight loading 50 ft. and 100 ft. spools
Siemens 50 ft. cassettes (also available with
single perforations)

Agfa Isopan FF Negative Film 15° DIN

Agfa Isopan ISS Negative Film 24° DIN
in 100 ft. daylight loading spools

AGFA black-and-white negative materials for pictorial photography

I. Isopan sheet films

A. Types and speed ratings

Isopan FF sheet film	clear	13° DIN
Isopan IP sheet film	matt	21° DIN
Isopan IP sheet film	clear	21° DIN
Isopan Ultra sheet film	clear	25° DIN
Isopan Record sheet film	clear	

B. Sizes

6.5 × 9 cm., 9 × 12 cm., 10 × 15 cm., 12 × 16.5 cm.
13 × 18 cm., 18 × 24 cm., 4 × 5 inches

C. Application

Isopan FF sheet film 13° DIN: Special film for
commercial photography, copying, architecture,
and landscape. Essential for large-scale enlarge-
ments.

Isopan IP sheet film 21° DIN: Universal general
purpose film for professional photographers, and
especially for studio portraiture of all kinds.

Isopan Ultra sheet film 25° DIN and Isopan Record sheet film: Special film for industrial and exhibition photography, advertising and fashion work, stage and variety, circus, sports and crowd work of all kinds.

D. Exposure

Depending on lighting (illumination), subject contrast, film speed, type of developer and developing technique. Slightly under-exposed negatives give sharper images than over-exposed negatives.

German photo-electric exposure meters in general are calibrated for high subject contrast. With subjects of low to average contrast, stop indications of exposure meters for black-and-white film can therefore be reduced by one stop or indicated exposure time halved.

E. Colour sensitivity

Type of film	Daylight				Photographic lamps			
	red	yellow	green	blue	red	yellow	green	blue
Isopan FF ¹⁾	90	65	60	140	130	95	65	100
Isopan F ²⁾	100	65	55	140	140	95	60	90
Isopan ISS ²⁾	110	65	55	120	180	95	55	90
Isopan Ultra ¹⁾	100	70	55	140	130	95	60	90
Isopan Record ²⁾	100	70	55	140	130	95	60	90

1) Miniature, roll and sheet film

2) Miniature and roll film

F. Development

Isopan sheet films may be processed in any standard negative developer. Specially recommended are the Agfa packed developers: Final, Atomal New and Rodinal. For further particulars of developers see p. 25 et seq.

G. Anti-halation protection

Colourless base coated on the back with dyed gelatine which is decolorised in the developer.

H. Identifying the emulsion side

Edge notching on the narrow side. With this at top right or bottom left, emulsion side is uppermost.

J. Sheet film holders

Agfa sheet film holders are supplied in all usual sizes (except 4×5 inches) and ensure that the film lies perfectly flat in the plateholder.

K. Darkroom lighting

Darkroom safelight No. 108, or work in the dark, see p. 56.

II. Isopan roll films

A. Types and speed ratings

Isopan FF	13° DIN	Isopan ISS	21° DIN
Isopan F	21° DIN	Isopan Ultra	25° DIN
Isopan Record			

B. Sizes and packings

Designation	No. of exposures and format	IFF	IF	ISS	ISU	IR
A 8 127	8 → $1\frac{1}{2} \times 2\frac{1}{2}$ or					
	12 → $1\frac{1}{2} \times 1\frac{1}{2}$ or	—	+	+	+	—
	16 → $1\frac{1}{4} \times 1\frac{1}{2}$					
B $\frac{2}{8}$ 120	8 → $2\frac{1}{4} \times 3\frac{1}{4}$ or					
	12 → $2\frac{1}{4} \times 2\frac{1}{4}$ or	+	+	+	+	+
	16 → $1\frac{1}{2} \times 2\frac{1}{4}$					
PB 20 metal spool 620	8 → $2\frac{1}{4} \times 3\frac{1}{4}$ or					
	12 → $2\frac{1}{4} \times 2\frac{1}{4}$ or	—	+	+	+	—
	16 → $1\frac{1}{2} \times 2\frac{1}{4}$					

C. Exposure. See p. 12 under heading D.

D. Colour sensitivity See p. 12 under heading E.

E. Development

In either deep tank or daylight tank. In daylight tank development thorough agitation is important,

and the inversion method is recommended. For deep tanks Final, Atomal New or N 56 should be used; for daylight tanks Atomal New, Final or Rodinal (diluted 1 : 50—1 : 100).

For further details on developers see p. 10 et seq.

F. Anti-halation protection

Colourless base coated on the back with dyed gelatine which is decolorised in the developer.

G. Application

For Isopan FF and Ultra see p. 11 under heading C.

Isopan F is the standard film for all normal work.

Isopan ISS is a special high speed film particularly designed for action photography under bad lighting conditions.

Isopan Record, the special film for press photographers or when flash cannot be used.

III. Isopan miniature films

A. Types and speed ratings

Isopan FF	13° DIN	Isopan ISS	21° DIN
Isopan F	17° DIN	Isopan Ultra	25° DIN
Isopan Record			

B. Sizes and packings

Designation	No. of exposures or length of roll	IFF	IF	ISS	ISU	IR
Karat Cassettes	12	—	+	+	—	—
Miniature cassettes	36	+	+	+	+	+
do	20	—	+	+	—	—
Daylight loading spools for reloading metal miniature cassettes	36	+	+	+	—	—
do	20	—	+	+	—	—
Darkroom reloads	36	—	+	+	—	—
Film in rolls	5 m	+	+	+	+	—
do	17 m	+	+	+	+	—

C. Exposure

See p. 12 under sheet film.

D. Colour sensitivity

See table on p. 12.

E. Development

The particulars given on page 14 for the development of roll films apply also to miniature films.

In regard to Isopan FF the following paragraph should also be noted.

F. Anti-halation protection

Dyed base. Isopan FF has also a coloured back coating which is decolorised in the developer. It is therefore not possible to develop two FF films back to back or to employ Correx aprons which are provided with pips on one side only.

G. Application

As for roll film page 15.

AGFA black-and-white printing papers

1. Paper types (see table on pp. 22 and 23)

1. Lupex

Universal paper for contact printing. By controlling development, Lupex Extra White gives tones from neutral black to blue-black, Lupex Cream warm black to brown black.

6 grades of contrast. Can be heat glazed.

2. Brovira

Standard enlarging papers Brovira extra white and ivory develop to neutral black, Brovira Chamols warm brown to brown-black.

Six Gradations. May be heat-dried.

3. Portruga

Special paper for contact prints from large negatives. 3 grades of contrast. Warm tone. For heat drying see page 21.

4. Portriga Rapid

Special enlarging papers. Three contrasts.

Portriga and Portriga Rapid are both warm tone papers giving excellent gradation. Their special surface quality is best maintained by allowing them to dry naturally. For advice as to drying by heat see page 21.

5. Record

Contact paper for warm to brown-black tones on extra white base. Only available in extra white glossy. 4 contrast grades (soft, special, normal, hard). Resistant to heat drying.

6. Record Rapid

Enlarging paper with the speed of Brovira Chamois. Only available in extra white glossy, and in 4 contrast grades (soft, special, normal, hard). Resistant to heat drying.

7. Varlolux

Enlarging paper for machine printing. Contrast grade can be controlled by additional exposure. Neutral to warm black tone on extra white or cream base. Resistant to heat drying.

8. Varitex

Contact paper for rollhead printers. Speed and contrast grade similar to Lupex Soft. Available in extra white and chamois. Resistant to heat drying.

9. Varitex Rapid

For projection printing and rollhead printing machines. Fully twice the speed of Varitex. Resistant to heat drying.

II. Properties

1. Relative exposures of the normal grade in artificial light

Lupex Cream and Record	1	1.4	2.5	25	32	40
Lupex White	1/1.4	1	1.8	18	22	28
Portriga	1/2.5	1/1.8	1	10	13	16
Brovira Cream and Record Rapid	1/25	1/18	1/10	1	1.3	1.6
Portriga Rapid	1/32	1/22	1/13	1/1.3	1	1.25
Brovira White	1/40	1/28	1/16	1/1.6	1/1.25	1

2. Surfaces*)

a) Brilliant (glossy): a perfectly smooth surface which when glazed yields an absolutely structureless mirror-like surface; gives utmost detail and sharpness and long density range.

b) Satino (semi-matt): semi-glossy smooth surface. Renders good detail, but not so extremely fine as Brilliant.

c) Veluto (velvet): slightly grained surface with a silky sheen.

d) Matt: even, non-glossy, elegantly smooth surface; density range not so great as with Brilliant.

*) see also tables on pp. 22 and 23.

e) Studio Royal matt: a very attractive paper with a unique pastel matt effect, giving deep blacks on a natural grained base.

f) Siltex (silk screen): Uniform texture surface with a silky sheen.

g) Filigran: An attractive irregularly grained surface with a dull sheen. Largely conceals negative graininess.

h) Crystal: Resembling Filigran, but with more sheen. Combines the brilliance of glossy papers with the grain-suppressing power of the Filigran surface.

3. Base tint and Image tone*)

a) White and extra white papers: Lupex and Brovira give neutral blacks and Lupex Rapid blue-blacks in standard print developers (Neutol), Portruga and Portruga Rapid warm blacks in all developers. Also blue-blacks with Lupex Extra White in Duotol developer or in standard developers with addition of Lupexal.

b) Chamois papers: warm to brown-black.

c) Ivory papers: Portruga and Portruga Rapid warm black, Brovira neutral black.

**Latitude in exposure and development,
development time**

Agfa photographic papers for pictorial photography have exceptionally great latitude both in exposure and in development. The image first

*) See also tables on pp. 22 and 23.

appears in about 20—30 seconds and builds up slowly. With correct exposure and fresh developer Lupex, Lupex Rapid, and Record develop to full brilliance in 1 minute, Portriga in 1 to 1½, Brovira, Record Rapid, and Portriga Rapid in 1½ to 2 minutes.

5. Heat drying

Lupex, Brovira and Record: All Lupex, Record and Brovira papers may be heat dried.

Portriga and Portriga Rapid: Special attractive surface obtained by natural drying without heat. All surfaces can be heat dried — with exception of ivory matt and White Royal — after additional hardening, e.g. with Agfa Alunal added to the fixing bath on a moderately heated drier. White glossy surface suitable for fairly high temperature glazing without additional hardening.

III. Darkroom lighting

Darkroom safelights Nos. 112, 113 D, 113 I, and 112/113 D; see page 56.

IV. Storage

Papers keep best in original packing. Keep cool and dry. Temperature 16—18° C, relative humidity not above 60 %. Do not expose to sun, light, dust or chemical fumes. Avoid so far as possible severe fluctuations of temperature. If these precautions are observed papers should keep for years.

Papers

Surface	Extra soft	Soft	Special	Normal	Hard	Extra hard
Lupex single weight						
1 extra white glossy	LEW 1	LW 1	LS 1	LN 1	LH 1	LEH 1
2a extra white velvet	—	LW 2a	LS 2a	LN 2a	LH 2a	—
21 cream glossy	LEW 21	LW 21	LS 21	LN 21	LH 21	LEH 21
22 cream semi-matt	—	LW 22	LS 22	LN 22	LH 22	LEH 22
22a cream velvet	—	LW 22a	LS 22a	LN 22a	LH 22a	LEH 22a
Lupex double weight						
111 extra white glossy	—	LW 111	LS 111	LN 111	LH 111	LEH 111

Enlarging Papers

Brovira single weight						
1 Type W brilliant extra white	BEW 1	BW 1	BS 1	BN 1	BH 1	BEH 1
2a Type W velvet extra white	—	BW 2a	BS 2a	BN 2a	BH 2a	BEH 2a
21 Brilliant cream	BEW 21	BW 21	BS 21	BN 21	BH 21	BEH 21
22 Satino cream	—	BW 22	BS 22	BN 22	BH 22	BEH 22
22a Veluto cream	BEW 22a	BW 22a	BS 22a	BN 22a	BH 22a	BEH 22a

Record paper is supplied only in extra white glossy single weight, in Soft, Special, Normal, and Hard contrasts. Lupex Rapid 1 only extra white glossy single weight available in 6 contrast grades.

Surface	Extra soft	Soft	Special	Normal	Hard	Extra hard
Brovira double weight						
111 Type W brilliant extra white	BEW 111	BW 111	BS 111	BN 111	BH 111	BEH 111
112 Type W satin extra white	—	BW 112	BS 112	BN 112	BH 112	BEH 112
113 Type W matt extra white	—	BW 113	BS 113	BN 113	BH 113	—
117 Type W Siltex extra white	—	BW 117	BS 117	BN 117	BH 117	—
119 Type W Crystal extra white	—	BW 119	BS 119	BN 119	BH 119	—
121 Brilliant cream	—	BW 121	BS 121	BN 121	BH 121	—
122 Satino cream	—	BW 122	BS 122	BN 122	BH 122	BEH 122
122a Veluto cream	—	BW 122a	BS 122a	BN 122a	BH 122a	BEH 122a
128 Filigran cream	—	BW 128	BS 128	BN 128	BH 128	—
138 Filigran ivory	—	BW 138	BS 138	BN 138	BH 138	—
139 Crystal ivory	—	BW 139	BS 139	BN 139	BH 139	—

Contact Papers

Surface	Soft	Normal	Contrasty
Portrigo double weight			
117 white silk texture	PW 117	PN 117	PK 117
122 cream semi-matt	PW 122	PN 122	PK 122
128 cream filigran	PW 128	PN 128	PK 128
132 ivory semi-matt	—	—	—

Record paper is supplied only in extra white glossy single weight, in Soft, Special, Normal, and Hard contrasts. Lupep Rapid 1 only extra white glossy single weight available in 6 contrast grades.

Enlarging Papers

Portrigo-Rapid double weight			
111 white glossy	PRW 111	PRN 111	PRK 111
112 white semi-matt	PRW 112	PRN 112	PRK 112
114e white art matt rough	—	PRN 114e	—
118 white filigran	PRW 118	PRN 118	PRK 118
122 cream semi-matt	PRW 122	PRN 122	PRK 122
128 cream filigran	PRW 128	PRN 128	PRK 128
133 ivory matt	PRW 133	PRN 133	PRK 133
138 ivory filigran	PRW 138	PRN 138	PRK 138

Record Rapid paper is supplied only in extra white glossy single and double weight, in Soft, Special, Normal, and Hard.

AGFA photographic chemicals for black-and-white

I. AGFA developers

A. Negative developers

Final

For deep tank and daylight tank development providing optimum adjustment of fine grain, emulsion speed utilisation, and freedom from fog, combined with a long straight characteristic. Keeps well and has high working capacity.

Supplied as:

Final fine grain compensating tank developer
Final fine grain developer (for daylight tanks and dish development only)

The tank developer can be replenished by the addition of a special replenisher solution.

Atomal New

Special developer for the finest possible grain combined with maximum emulsion speed and good keeping qualities.

Requires no increase in exposure. The tank developer can be replenished by adding a special replenisher.

Supplied as:

Ultra fine grain tank developer
Ultra fine grain developer for dish and daylight tank development.

In making up solution in a tank, if possible suspend the salt at the surface of the liquid. Before use, thoroughly mix the solution. Minimum fixing time for negatives:

Twice as long as it takes the negative to clear.

Fixing time for prints:

Never longer than 10 minutes, and with freshly made up baths 5 minutes, otherwise washing time will be unduly prolonged and permanence of the prints cannot be guaranteed.

Working capacity of the acid fixing bath:

10 sq. feet of negative material per litre (35 oz.)

30 sq. feet of paper per litre (35 oz.)

Make a point of testing the effectiveness of the fixing bath at regular intervals with the Agfa Fixing Aid.

For recovery of dissolved silver see this page 31 under Reagent.

Comblifix

Alkaline rapid fixing solution of high concentration for the combined fixing of negative films. Further particulars included in the instructions for use.

III. AGFA auxiliary chemicals

Pina White

Desensitiser to enable negatives to be developed in a bright light. Dissolved in water, may be added to the developer, or, dissolved in an aqueous solution of sodium sulphite, may be used as a

fore-bath. Does not stain the hands or sensitive materials. Recommended when development by inspection is adopted.

Lupexal tablets

For adding to the developer to give blue-black tones on white Lupex papers. Does not affect the tone of papers designed to give brown black tones. Can also be used as a fog inhibitor and in development at high temperatures.

Tropexal tablets

For adding to the developer to ensure freedom from fog when developing prints at considerably above normal temperature, e.g. in the tropics. Does not affect image tone.

White Toner tablets

For increasing the brilliance of the white base of photographic prints. The tablets can be used as an addition to the developer or as a final bath following washing.

Tank balls

Prevent the growth of bacteria in tank developers, thus protecting them from the effects of decomposition (such as, for example, a brown coating on films) and at the same time prevent objectionable odours. Should be added to every tank of new developer. Is not effective, however, if added after bacterial attack has once become evident.

Alunal

Hardener for adding to acid fixing and stop baths for hardening prints (and films). Makes for reliable operation of rotary dryers. Reduces risk of loss

of high lights and middle tones when fixing conditions are abnormal and of deterioration of blacks of heat-dried prints. Shadows remain saturated.

Fixaton tablets

Can be added to any fixing or hardening fixing bath. For improving the warm black tone of all Cream papers, Record and Record Rapid papers, and papers of the Portriga and Portriga Rapid range. Also prevent deterioration of image tone when drying is carried out at extreme temperatures.

Fixing Aid

A method of testing the concentration of the fixing bath (with two rubber balls of different specific gravities and determining its silver and acid content (with test papers). The test papers can be re-ordered separately.

Viradon

Universal single-solution toner in highly concentrated solution for producing copper brown tones; specially suitable for all Agfa Cream papers and those of the Portriga and Portriga Rapid range. Extremely economical in use: at a concentration of 1:50, 1 litre suffices to tone 150 international post cards.

Bactericidal tablets

Protect negatives and prints from attack by bacteria and termites, as well as mildew. Used as an after-treatment following final washing.

Reargan

Silver precipitant for recovering the silver from exhausted fixing solutions.

Agepon

Wetting agent for preventing drying marks and expediting drying. Used as an after-treatment following final washing of negatives and prints.

Process tacky adhesive

For holding small sheet films flat on glass plates for use in plate holders of larger size.

New Coccln

Retouching dye for adding density locally to weak areas of the negative. Applied by brush in the form of a weak solution in water. If applied too heavily can be reduced by washing in water.

Biolase

Cleaning agent for flat bed and rotary glazer blankets. Dissolves out gelatine from the cloth without damaging the material.

M 23

Removes the matt surface from the matt backing of sheet films, and residual traces of anti-halation backing of IFF miniature film; also prevents formation of stains and spots which can arise in Agfacolor materials as a result of iron-contaminated water.

IV. AGFA chemicals for compounding solutions**1. The use of tested chemicals**

Utmost purity of chemicals is equally important when making up solutions in the laboratory. Only such chemicals therefore should be employed as

are branded by the manufacturer as pure "for photographic use". Agfa supply the following chemicals of guaranteed purity:

Metol Agfa¹⁾
Hydroquinone Agfa
Glycin
Pyrocatechin
Sodium sulphite anhydrous
Sodium carbonate anhydrous
Potassium bromide
Potassium metabisulphite
Sodium thiosulphate (hypo) crystals

2. Storage

The best protection against deterioration of chemicals by external influences is always the original packing provided by the manufacturers. Photographic chemicals should never be stored in paper bags or similar containers. Never use glass stoppered bottles for alkalis.

V. Formulary

The following formulae are all intended to be made up to 1 litre of working solution, except Agfa developers 120 and 123, which make 1 litre of stock solution.

a) Agfa negative developers

Agfa developer 8

Glycin developer, normal contrast

Sodium sulphite anhyd. 12.5 gm.

Glycin 2 gm.

Potassium carbonate 25 gm.

Development time 10—12 minutes.

¹⁾ Registered trade mark

Agfa developer 14

Metol-sulphite developer, soft working, for fine grain development

Metol Agfa	4.5 gm.
Sodium sulphite, anhyd.	85 gm.
Sodium carbonate, anhyd.	1 gm.
Potassium bromide	0.5 gm.

Development time 16—20 minutes.

Agfa developer 16

Tropical fine grain developer (fine grain, soft working)

Metol Agfa	6 gm.
Sodium sulphite anhyd.	100 gm.
Sodium carbonate	12 gm.
Potassium bromide	3 gm.
Sodium sulphate ²⁾	40 gm.

Development time at 18° C 9 to 11 minutes, at 24° C approx. 6 minutes, at 28° C approx. 3 minutes.

Agfa developer 40

Metol-hydroquinone-potash developer, high contrast

Metol Agfa	1.5 gm.
Sodium sulphite anhyd.	18 gm.
Hydroquinone Agfa	2.5 gm.
Potassium carbonate	18 gm.

Development time 4—5 minutes.

2) To be added in small quantities at a time.

b) Agfa print developers

Agfa developer 100, normal contrast

Metol Agfa	1	gm.
Sodium sulphite anhyd.	13	gm.
Hydroquinone Agfa	3	gm.
Sodium carbonate anhyd.	26	gm.
Potassium bromide	1	gm.

Development time 1—2 minutes.

Agfa developer 105, soft working

Metol Agfa	3	gm.
Sodium sulphite anhyd.	15	gm.
Potassium carbonate	15	gm.
Potassium bromide	0.4	gm.

Development time about 1½ minutes.

Agfa developer 108, high contrast developer

Metol Agfa	5	gm.
Sodium sulphite anhyd.	40	gm.
Hydroquinone Agfa	6	gm.
Potassium carbonate	40	gm.
Potassium bromide	2	gm.

Development time 1—2 minutes.

Agfa developer 120, brown developer

Sodium sulphite anhyd.	60	gm.
Hydroquinone Agfa	24	gm.
Potassium carbonate	80	gm.
Potassium bromide	2	gm.

Development conditions for Agfa developer 120

Paper type	Image tone	Exposure time	Dilution	Development time at 20° C
Brovira	warm black	normal*)	1 : 5	4-5 minutes
Brovira Cream	blackbrown	1 ½ × longer than normal*)	1 : 4	3 minutes
Portriga Rapid	brownblack	1 ½ × longer than normal*)	1 : 4	3 minutes
Portriga	a) brown-black b) black-brown	normal	1 : 2	5-6 minutes
		2 × longer than normal*)	1 : 3	2-3 minutes
Lupex Cream	brownblack	1 ½ × longer than normal*)	1 : 3	2-3 minutes

*) By normal exposure is to be understood the exposure required to produce the best possible print when developed for 1—1 ½ minutes in Agfa 100.

Agfa developer 123, brown developer

Sodium sulphite anhyd. 60 gm.
Hydroquinone Agfa 24 gm.

Potassium carbonate 80 gm.
Potassium bromide 25 gm.

Development conditions

Paper type	Image tone	Exposure time	Dilution	Development time at 20° C
Portriga Rapid	a) brown-black	2½ × longer than normal*)	1 : 1	2 minutes
	b) neutral to sepia brown	2 × longer than normal*)	1 : 4	5-6 minutes
Portriga	a) olive-brown	3 × longer than normal*)	1 : 2	3 minutes
	b) neutral brown	2—3 × longer than normal*)	1 : 3	4-5 minutes

*) By normal exposure is to be understood the exposure required to produce the best possible print when developed for 1—1½ minutes in Agfa 100.

c) Stop baths

Agfa 200

Water	1000	cc.
Glacial acetic acid	20	cc.

Agfa 201

Water	1000	cc.
Potassium metabisulphite	40	gm.

Agfa 204, hardening stop bath

Alunal Part A	30	gm.
Alunal Part B	30	gm.

Dissolve in 900 cc. water with moderate heat.
When cold add 10 cc. glacial acetic acid and
make up to 1 litre with water. Time of
immersion in stop bath, 2 minutes.

d) Fixing bath

Agfa 300, acid fixing bath

Sodium thiosulphate (hypo) crystals	200	gm.
Potassium metabisulphite	20	gm.
Dissolve in about 750 cc. water and make up to 1000 cc.		

Agfa 302, hardening fixing bath

To 1 litre of acid fixing solution (Agfa 300)
add the following solution:

Water	150	cc.
Potassium alum (dissolve hot, and cool to 20° C)	15	gm.
Sodium sulphite anhyd.	7.5	gm.
Glacial acetic acid	12	cc.

Agfa 304, rapid fixing bath

Sodium thiosulphate crystals	200	gm.
Ammonium chloride	50	gm.
Potassium metabisulphite	20	gm.
Dissolve in about 750 cc. water and make up to	1000	cc.

e) Hardening baths**Agfa 400**

Water	1000	cc.
Potassium alum powder	100	gm.

Agfa 401

Water	1000	cc.
40 % formaldehyde solution (formalin)	120	cc.

Agfa 402 (for specially great hardening)

Water	500	cc.
Alcohol	500	cc.
40 % formaldehyde solution (formalin)	120	cc.

Hardening time 5—10 minutes.

Agfacolor photography**I. Type of sensitive material**

Agfacolor films are 3-layer films (integral tripacks) which build up a coloured image by means of a yellow, a magenta, and a blue-green (cyan) layer, on the subtractive principle. Non-diffusing colour couplers are incorporated in the three layers, and

these by combination with the oxidation products of the developer form all three colours simultaneously in the course of a single development stage.

Agfacolor films are manufactured as negative and as reversal film.

1. Agfacolor negative film CN 17

Should be exposed as for black and white films rated at 17° DIN.

Universal film for daylight, artificial light and flash. (Mixed lighting should be avoided). Colour balance is corrected by printing filters when the film is printed; no filter should therefore be used on the camera, except, if necessary, a colourless UV absorbing filter or a polarising filter.

From the negatives, which are in complementary colours, can be made colour prints and transparencies in any size and number, of a very high degree of sharpness and colour brilliance, also black-and-white paper prints and transparencies of equally high quality. CN 17 is halation free and has good exposure latitude. Agfacolor negatives in large sizes can be retouched. It is advisable to do the retouching on a separate matt film which is then securely bound up with the negative with adhesive tape. Simple pencil retouching is usually adequate, but it is also possible by suitable colour retouching to some extent to modify the colour rendering.

3. Agfacolor reversal film CT 18

Should be exposed as for 18° DIN = 50 ASA. CT 18 is for daylight and light sources of daylight type (electronic flash, blue flash bulbs, fluorescent tubes).

Reversal film yields direct positives in natural colour in the form of transparent pictures (transparencies).

From the transparencies duplicate transparencies can be made direct, and enlargements — black-and-white and colour — by means of an intermediate negative.

The exposure latitude of reversal film is less than that of negative film. An exposure meter is essential.

Colour filters are not generally required, but if necessary UV absorbing filters (colourless) and polarising filters may be used. UV absorbing filters should be used with a lens having a cold colour bias.

4. Agfacolor reversal film CK 20

for exposure as for 20° DIN = 80 ASA. For tungsten photographic lamps (Nitraphot, Argaphoto etc.).

Agfacolor films and formats

			CT 18	CK	CN 17
Miniature film	Karat	12	+	—	+
	Cassette	12	—	—	+
	Cassette	20	+	+	+
	Cassette	36	+	+	+
Roll film	A 8 (127)		+	+	+
	B 2—8 (120)		+	+	+
	PB 20 (620)		—	—	+
Sheet film	6.5 × 9	cm.	+	+	+
	9 × 12	cm.	+	+	+
	10 × 15	cm.	+	+	+
	12 × 16.5	cm.	+	+	+
	13 × 18	cm.	+	+	+
	18 × 24	cm.	+	+	+
	24 × 30	cm.	+	+	+
	4 × 5	inch.	+	+	+

II. Positive materials

Agfacolor paper (sheets and rolls)

Universal contact and enlarging paper for prints in natural colour from Agfacolor negatives.

The speed of Agfacolor paper corresponds to that of Agfa Brovira. Contrast grades: Normal and Hard. Surface: 111. May be heat dried only after special hardening.

Agfacolor Positive Film S

Integral tripack film for making transparencies from Agfacolor negatives. Not suitable for use in the camera.

Supplied in the following sizes: 8.5×8.5 , 9×12 , 13×18 , 18×24 , 24×30 cm., and also in continuous rolls 35 mm., 61.5 mm., and 105 cm. wide.

III. Agfacolor Developers and Fixing Agents

a) Agfacolor processing chemicals for negative films and Positive Film S

Agfacolor processing chemicals for negative films	N set for 1 l.
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compl. set comprising:

Film Developer S to make 1 l. solution	NPS I for 1 l.
--	-----------------------

Bleach bath for neg. film to make 1 l. solution	NP II for 1 l.
---	-----------------------

Fixing bath for neg. film to make 1 l. solution	NP III for 1 l.
---	------------------------

Agfacolor processing chemicals for Positive Film S	P set
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compl. set comprising:

Film Developer S to make 1 l. solution	NPS I for 1 l.
--	-----------------------

Stop-fix bath for Positive Film S to make 1 l. solution	PPa II for 1 l.
---	------------------------

Bleach-fix bath for Ac. paper and Positive Film S to make 1 l. solution	PPA III for 1 l.
---	-------------------------

Special after-bath for	
Positive Film S	PS IV
to make 1 l. solution	for 1 l.

Agfacolor Film Developer S	NPS I
to make 1 l.	
working solution	* for 1 l.
to make 10 l.	
working solution	for 10 l.
to make 35 l.	
working solution	for 35 l.

Agfacolor Replenisher for Film Developer S	RNPS
package to make 3 l.	
working solution	for 3 l.

Agfacolor Bleaching Bath for Negative Film	NP II
to make 1 l.	
working solution	for 1 l.
to make 10 l.	
working solution	for 10 l.
to make 35 l.	
working solution	for 35 l.

Agfacolor Fixing Bath for Negative Film	NP III
to make 1 l.	
working solution	for 1 l.
to make 10 l.	
working solution	for 10 l.
to make 35 l.	
working solution	for 35 l.

Agfacolor Stop-Fix Bath for Positive Film S	PPa II
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10 l.
to make 35 l. working solution	for 35 l.
Agfacolor Special After-Bath for Positive Film S	PS IV
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10 l.
to make 35 l. working solution	for 35 l.

b) Agfacolor paper processing chemicals

Agfacolor paper processing chemicals	Pa set
compl. set comprising:	for 1 l.
Paper developer to make 1 l. solution	Pa I/60
Bleach-fix bath to make 1 l. solution	PPa III for 1 l.
Paper buffer bath to make 1 l. solution	Pa IV for 1 l.
Anti-fading agent to make 1 l. solution	Pa VI for 1 l.
Agfacolor Print Developer	Pa I/60
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10 l.

Agfacolor Replenisher for Print Developer	RPa/60
package to make 3 l. working solution	for 3 l.
Agfa Bleach-Fix Bath	PPa III
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10
to make 35 l. working solution*)	for 35 l.
Agfacolor Bleach-Fix Bath Replenisher	RPPa
150 mg.	150 gm.
Agfacolor Paper Buffer Bath	Pa IV
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10 l.
Replenisher for Agfacolor Paper Buffer Bath	RPa IV
to make 3 l. working solution	for 3 l.
Agfacolor Anti-Fading Agent	Pa VI
to improve the light resistance of Agfacolor prints (powder form)	
to make 1 l. working solution	for 1 l.
to make 10 l. working solution	for 10 l.

*) excl. external packing.

IV. Agfacolor accessories

Agepon (see page 12)

Agfa film varnish

Agfacolor bleach-fix test paper
(for checking acidity)

Agfacolor conversion table (for determining
exposures for Agfacolor papers)

Agfacolor exposure slide rule (for calcu-
lating exposures for Agfacolor papers)

Agfacolor colour circle (a device for ex-
plaining the principles of Agfacolor photo-
graphy)

Agfacolor filter circle (additive) for Colormat

Agfacolor transparency frames (see page 8)

Agfacolor transparency template (for
trimming 6×6 cm. transparencies).

AGFA laboratory equipment

a) Printers and accessories

Agfa Serlomator contact printer for sizes up to
13×18 cm., with automatic exposure
control.

Paper cabinet for Agfa Seriomator

Developing table for Agfa Serlomator

Agfa Serlograph II F, Agfacolor printer for con-
tinuously variable filter control, with built-in
electronic Secarat timer for 110, 125, 155 or
220 volts.

Agfa Serlotyp I electromagnetic print numbering
machine for printers and enlargers.

Agfa Seriotyp II electromagnetic print numbering machine for printers and enlargers with space for firm's name.

b) Enlargers and accessories

Agfa Varioscop 60

(for black and white and Agfacolor)

Enlarger with automatic focusing, interchangeable lenses for 35 mm. and formats up to $3\frac{1}{2} \times 2\frac{1}{4}$ in., Agfa Magnolar 4.5/60 and Agfa Magnolar 4.5/105 mm., double condenser, coated; with extended column, built-in swing-in filter slide for 12×12 cm. colour filters, universal negative carrier with interchangeable masks, enlarged baseboard, with special 150 watt opal lamp.

Accessories for Agfa Varioscop 60

Illuminated scale of enlargement

for colour enlargements, 110 volts

do., for 125 volts

do., for 220 volts

Extension attachment

for types 8766/000 to 8766/040

Special holder for miniature negatives

with sliding masks glassless

Book-form holder for single negatives

with spacing plates of plate or AN glass

Metal masks for the book-form holder

24 × 24 mm., 18 × 24 mm.

24 × 36 mm., 30 × 40 mm.

40 × 40 mm., 40 × 65 mm.

45 × 60 mm., 60 × 60 mm.

Metal mask for book-form holder
40×40 mm. for eccentric 4×4 negatives
on 120 roll film.

Repro copying cassette

Red filter, swing-in type.

**Storage case for Varioscop accessories, including
brush and duster.**

Protective cover

**Auxiliary condenser for colour head for Varioscop
6 cm. lens**

Agfa Varioscop 35/44

(for black and white and Agfacolor)

with automatic focusing for 35 mm. and
4×4 negatives, Agfa Solagon D II 4.5/60 mm.
lens, hand setting lever for fixing enlarge-
ment scale quickly, T 35 negative holder
with adjustable masks and transport operat-
ed from baseboard, aspherical condenser,
stepped reflector giving very uniform illu-
mination and maximum light output, special
150 watt opal lamp.

Accessories for Agfa Varioscop 35/44

Filter drawer

Adapter ring for subtractive colour head

Auxiliary condenser for subtractive colour head

Illuminated scale indicator

Focusing and reading light

Storage case for accessories

Protective cover

Holder for separate negatives

T 44 negative holder for 4×4 negatives

Accessories for Agfa Varloscops 60 and 35/44

Colour head with lamp

for continuous filtering 0—200 (220 volts)

— do. —, 110 volts

— do. —, 125 volts

— do. —, 155 volts

Securat Timer E 60

electronic timer for enlargers and printers,
for AC supplies only and lamps up to a maxi-
mum of 500 watts, with voltage selector.

Enlarger masking frame 8×10 in. (20×25 cm.) with clamping strip, cm. and inch scale.

Agfa Variomat, enlarger masking frame with automatic exposure control for paper siz from $2\frac{1}{4} \times 2\frac{1}{4}$ in. to 7×5 in., for 220 volts A.

8×10 attachment for Agfa Variomat, for use conjunction with Agfa enlarging frames f automatic exposure control with sizes above 7×5 up to 8×10 in.

Adapter masks for passport photos, for Agfa Variomat.

Agfa Variomat C, enlarger masking frame with automatic exposure control for Agfacolor printing.

Agfa Variomat ST, enlarger masking frame with automatic exposure control and interchange- able masks for standard paper sizes 3×3 , $3 \times 4\frac{1}{8}$, $3\frac{1}{2} \times 3\frac{1}{2}$, $3\frac{1}{2} \times 5$ inch. and inter- national postcard (further interchangeable masks on request).

Agfa Colormat, Agfacolor enlarger and filtering unit with automatic exposure control comprising: Agfa Varioscop 60, Variomat V, control unit and colour head.

Foot switch for Variomats and Colormat for operating the focusing lamp.

Agfa Colorix roll cassette for making Agfacolor prints on paper rolls, used in conjunction with the Agfa Colormat.

c) Laboratory equipment for the Agfa photo-finishing line

Agfa Varlograd 2 B, black and white rollhead printers for standard enlargements (enprints) from 35 mm. to $2\frac{1}{4} \times 3\frac{1}{4}$ in. negatives in the sizes $3\frac{1}{4} \times 3\frac{1}{4}$, $3\frac{1}{4} \times 10\frac{1}{2}$, $3\frac{1}{2} \times 3\frac{1}{2}$ or $3\frac{1}{2} \times 5$ on Variolux rollhead paper of one grade. By precisely controlled additional exposure the contrast-grade of the paper can be extended to print all negatives without loss of quality.

Texomat 2 B, black and white rollhead printer for Varitex or Varitex R paper for 76 or 89 mm. in width.

Agfa Colormator N 2 B, rollhead printer with colour and exposure control for Agfacolor enlargements from colour negatives 24×24 mm., 24×36 mm., 4×4 cm., 4×6.5 cm., $2\frac{1}{4} \times 2\frac{1}{4}$ in. and $2\frac{1}{4} \times 3\frac{1}{4}$ in. in print sizes of 3×3 in. or $3 \times 4\frac{1}{8}$ in. or $3\frac{1}{2} \times 3\frac{1}{2}$ in.

or $3\frac{1}{2} \times 5$ in. Additive filtering principle. Special models of these machines and accessories on request.

Agfa Labomator S (for black and white paper).

Agfa Labomator N (for Agfacolor paper).

Roll developing machine for processing black and white or colour prints on rollhead papers, two types for black and white work with operating speeds of $3\frac{1}{4} \times 6\frac{1}{2}$ feet per min., two types for colour negative-positive with speeds of $1\frac{1}{8} \times 3\frac{1}{4}$ feet per min. All models are designed on the unit construction principle. The feed and delivery ends of all machines are the same. The various types differ only in the number and arrangement of the tanks and in their operating speeds; outputs thus vary accordingly. One or two paper rolls up to a width of 130 mm. can be processed. Accessories for Labomator N and S on request.

Agfa Rapldomat, special drum glazing machine for drying rollhead papers.

Agfa Cutomat, automatic electronic guillotine for cutting rollhead papers.

Labomix 100, compounding vessel for compounding and mixing developers and processing solutions and pumping them into the tanks.

Laborette S 100, automatic rollhead paper processor including drying unit, for black and white.

d) Developing, fixing, and washing equipment

Agfa Labomat K, Agfacolor print developing machine for prints up to 7×5 in., comprising 12 tanks arranged in logical processing sequence.

Agfa rotary fixing trough of Trovidur plastic with motor print circulator, perforated scoop.

Agfa rotary washing tank of Trovidur plastic with perforated scoop.

Agfa washing tank (flat type) for larger print sizes.

Agfa multi-trough developing dish for prints up to $3 \times 4\frac{1}{8}$ or $3\frac{1}{2} \times 3\frac{1}{2}$ in.

Agfa strip developing dish. Developing trough for strips 48 inches long after exposure in rollhead printers.

Agfa Flutomat for constant development of negatives with circulating pump, thermostat, and automatic replenishment.

Special accessories for the Agfa Flutomat:

Tank hangers

e) Print drying equipment

Agfa IA squeegee board of Trovidur plastic for plates 18×26 in.

Agfa roller squeegee, roller 8 in. wide.

Agfa IA glazer and dryer, without sheets.

Glazing sheets for above, chromium plated 18×26 in.

f) Trimmers

Four models of varying edge and length:

Agfa trimming machine, $7\frac{1}{4} \times 10$ in.

Agfa deckle edge trimmer for professional and international deckle edge trimming.

Agfa double trimming bench for two machines, treadle operated, for straight and deckle edges.

Treadle and connecting rod

Agfa strip cutting bench

g) Miscellaneous laboratory equipment

Agfacolor filter cabinet and individual printing filters

Agfa negative identification labels

Agfa laboratory wallets

Agfa roll film openers

Print processing tongs

Film wipers

Darkroom timer

Laboratory thermometer

Tank rods

Film hangers

Rubber rings

Film clips for roll film

Miniature film clips

Double clips

Intermediate hangers

Lead weights for film clips

Rubber gloves

**Comparison table
of speed systems for photographic materials**

DIN	ASA	Weston	General Electric
10°	8	6	10
11°	10	8	12
12°	12	10	16
13°	16	12	20
14°	20	16	25
15°	25	20	32
16°	32	25	40
17°	40	32	50
18°	50	40	64
19°	64	50	80
20°	80	64	100
21°	100	80	125
22°	125	100	160
23°	160	125	200
24°	200	160	250
25°	250	200	320
26°	320	250	400
27°	400	320	500
28°	500	400	640
29°	640	500	800
30°	800	640	1000

Thermometer tables

The Centigrade and Reaumur degrees are in the ratio of 10:8. To convert Fahrenheit to Centigrade, subtract 32 and multiply by $\frac{5}{9}$.

° R	° C	° F	° R	° C	° F
-8.0	-10	+14	+8.8	+11	+51.8
7.2	9	15.8	9.6	12	53.0
6.4	8	17.0	10.4	13	55.4
5.6	7	19.4	11.2	14	57.2
4.8	6	21.2	12.0	15	59.0
4.0	5	23.0	12.8	16	60.8
3.2	4	24.8	13.6	17	62.6
2.4	3	26.0	14.4	18	64.4
1.6	2	28.4	15.2	19	66.2
0.8	1	30.2	16.0	20	68.0
± 0	± 0	+32.0			
+ 0.8	+ 1	+33.8	+16.8	+21	+69.8
1.6	2	35.6	17.6	22	71.6
2.4	3	37.4	18.4	23	73.4
3.2	4	39.2	19.2	24	75.2
4.0	5	41.0	20.0	25	77.0
4.8	6	42.8	20.8	26	78.8
5.6	7	44.6	21.6	27	80.6
6.4	8	46.4	22.4	28	82.4
7.2	9	48.2	23.2	29	84.2
8.0	10	50.0	24.0	30	86.0

Thermometer tables (Continuation)

° R	° C	° F	° R	° C	° F
+24.8	+31	+87.8	+36.8	+46	+114.8
25.6	32	89.6	37.6	47	116.6
26.4	33	91.4	38.4	48	118.4
27.2	34	93.2	39.2	49	120.2
28.0	35	95.0	40.0	50	122.0
28.8	36	96.8			
29.6	37	98.6	+40.8	+51	+123.8
30.4	38	100.4	41.6	52	125.6
31.2	39	102.2	42.4	53	127.4
32.0	40	104.0	43.2	54	129.2
			44.0	55	131.0
+32.8	+41	+105.8	44.8	56	132.8
33.6	42	107.6	45.6	57	134.6
34.4	43	109.4	46.4	58	136.4
35.2	44	111.2	47.2	59	138.2
36.0	45	113.0	48.0	60	140.0

h) Laboratory lighting

Agfa pyramld lamps, direct and indirect

Agfa wall lamps, also available with Duplex fitting

l) Darkroom safelights

No. 103 green

Indirect safelight for universal use as general illumination for the processing of all orthochromatic, panchromatic, and orthopanchromatic emulsions.

No. 104 reddish brown
for lantern plates and positive film, X-ray
film, X-ray and recording papers, and all
material of similar sensitivity.

No. 107 red
for very high speed blue-sensitive an
orthochromatic emulsions.

No. 107/108
red-green duplex safelight.

No. 108 matt green
for panchromatic material.

No. 112 matt yellow
for all Lupex papers, Record papers, and
papers of similar speed (Lupex safelight).

No. 113 D matt yellow-green
for all Brovira papers and papers of similar
speed used as a direct safelight (Brovira
safelight), Portriga, Portriga Rapid, and
Record Rapid.

No. 113 I matt yellow-green
indirect safelight for universal use as a
general illuminant in processing all papers
of similar sensitivity, Portriga and Portriga
Rapid.

No. 112/113 D
Lupex-Brovira duplex safelight.

No. 166
for Agfacolor papers and positive film S.

No. 170
for Agfacolor negative film.

AGFA Recording Supplies

Magnetic recording media for various applications connected with magnetic sound and impulse recording.

Tapes, folls, films, coating solutions

Magnetic substance and binding medium

Hard magnetic iron oxides with high remanence and coercive force. Iron oxides of other coercive force in the coating solution if required.

Binding medium: Plastic lacquer of great adhesive strength and abrasion resistance.

Coating thicknesses (tapes, folls, films): depending on usage 10 to 25 micron. Very uniform, thickness fluctuations 1 micron.

The high remanence of the hard magnetic iron oxide now exclusively used produces, in comparison with the former soft magnetic type of F band, a considerable increase in volume coupled with a very low cubic distortion factor K_3 . Thus, on full modulation — $K_3 = 3\%$ for 30 and 15 i.p.s. or 5% for $7\frac{1}{2}$, $3\frac{3}{4}$ and $1\frac{1}{8}$ i.p.s. — the contrast or sound-volume ratio of the tape recorders is considerably improved. The high coercive force also produces a better frequency response. This enables the tape speed to be reduced and the double track process to be used without loss of quality. This also offers great advantages for the four-track system.

Supports

Cellulose Acetate AC for MF 4 magnetic films and FR magnetic recording tapes. The red coloured cellulose acetate base for tapes has a matt finish on the back which ensures satisfactory winding properties at high speeds without abrading. The flat surface obtained when the tape is wound protects it against deformation during long storage. Softening point above 356°F . Most favourable storage conditions 64 to 77°F and 55 to 65% relative humidity.

Polyester pre-stretched PE for PS magnetic recording tapes. Possesses increased mechanical strength and heat resistance. Softening point above 428°F .

This heavily pre-stretched polyester base has an exceptionally high tensile strength of over 398 lb sq. in. , comparable with steel. This means that practically the same mechanical strength is achieved in the thin long-playing PE 31 tape and in the even thinner PE 41 double tape as in the thicker standard FR tapes on a cellulose acetate base; the PE 22 studio tape accordingly withstands very great mechanical stresses. The PE tapes are unaffected by damp, and they resist heat and cold from -100°C to over $+100^{\circ}\text{C}$. They are therefore specially suitable for use in regions of extreme cold and heat.

1. Studio tapes

Standard types in widths of $\frac{1}{4}$, $\frac{1}{2}$ and 1 inch , 50 to 65 micron thick, for recording speeds of 30 , 15 and $7\frac{1}{2}\text{ l.p.s.}$

Table of running times for studio tapes. Tape length, external diameter of wound tape (core diameter 100 mm, tape thickness approx. 60 micron) and running times of magnetic tapes at various speeds.

Length in metres	Approx. diam. of wound tape in mm.	Running time at a speed of					
		15 i. p. s.		7½ i. p. s.		3¾ i. p. s.	
		min.	sec.	min.	sec.	min.	sec.
1000	292	44	—	88	—	176	—
900	279	39	12	78	24	156	48
800	265	35	—	70	—	140	—
700	250	30	36	61	12	122	24
600	234	26	12	52	24	104	48
500	218	22	—	44	—	88	—
400	201	17	36	35	12	70	24
300	180	13	12	26	24	52	48
200	158	8	48	17	36	35	12
100	132	4	24	8	48	17	36
50	122	2	12	4	24	8	48

Agfa FR and FR 25 magnetic tape

Base: Cellulose acetate, coloured red, with matt back: for professional studios forced to observe a reference modulation of 200 mM.

Normally supplied in $\frac{1}{4}$ inch (6.25 mm.) width on a metal core of 100 mm. diam. and 11 mm. height in 700 and 1,000 metre lengths.

Agfa PER magnetic tape

Base: Pre-stretched polyester, with matt back, electro-acoustic values as for the FR 25 tape.

In all cases where it is not necessary to keep to the reference modulation, i.e. with primary recordings, play-backs and stereo recordings, the following types with an extremely low distortion factor are specially suitable (tape flux for full modulation level more than 600 mM).

Agfa FR 22 magnetic tape

Base: Cellulose acetate, coloured red, with matt back. Length 900 metres on metal core.

Agfa PE 22 magnetic tape

Base: Pre-stretched polyester, length 1,000 metres on metal core, with matt back.

2. Amateur tapes on pre-stretched POLYESTER

The increase in remanence gives the amateur a considerable gain in volume range or high reliability against over-modulation. The thin base enables the coating thickness to be maintained and thus the high-class magnetic characteristics

of the previous FSP standard tape even in the long-playing tape without impairing mechanical strength values. Due to the good pliability of the PE foil and the new type of binding medium possessing good abrasion-resistant properties, the frequency response has been considerably improved in comparison with the standard tape, especially at the lower tape speeds, because the tape comes into closer contact with the sound heads.

For this reason manufacture of the FSP standard tape on a PVC base has been discontinued.

New types for 15, 7½, 3¾ and 1⅞ i.p.s. and lower tape speeds:

Agfa PE 31 magnetic tape

Thickness 35 micron, giving 50% greater running time than the standard tape with the same spool diameter but equal mechanical strength and superior electro-acoustic properties.

Agfa PE 41 magnetic tape

Thickness 26 micron, giving double the running time of the standard tape; provides reliable results on all tape recorders. Specially suitable for the four-track technique, due to its exceptional pliability.

Agfa PE 31 S editing tape

Same characteristics as Agfa PE 31 tape but with white matt back for marking cine film and slide recordings and for dictation. This matt layer increases the overall thickness slightly.

Available tape lengths and running times for Agfa amateur tapes

All tapes are supplied complete with leaders and stop tapes in storage cartons

Tape	Length in metres	Spool diam. in cm.	Playing time at 3¼ i. p. s. *) dual track in min.
PE 31 long-playing tape pre-stretched POLYESTER	65	8	2 × 11
	180	11	2 × 30
	270	13	2 × 45
	360	15	2 × 60
	540	18	2 × 90
	720	22	2 × 120
	1000	25	2 × 180
PE 41 double tape pre-stretched POLYESTER	90	8	2 × 15
	270	11	2 × 45
	360	13	2 × 60
	540	15	2 × 90
	720	18	2 × 120
	1000	22	2 × 180
PE 31 S editing tape pre-stretched POLYESTER	180	13	2 × 30

*) At 1½ i.p.s. the playing time is doubled, at 7½ i.p.s. it is halved.

3. Agfa magnetic films

for film and television studios and narrow-gauge sound films. Base: Cellulose acetate 0.125 mm. (16 and 8 mm. film widths) and 0.135 mm. (17.5 and 35 mm. film widths).

All Agfa magnetic films are fully coated.

Agfa MF 4 magnetic films

35 mm., perforated on both sides.

17.5 mm., perforated on one side (split film).
Length: 300 to 320 metres on plastic cores
100 mm. diameter.

16 mm., perforated on one or both sides.
Length: 300 to 320 metres on plastic cores
100 mm. diameter or on special metal spool
in film can.

8 mm., perforated on one side.
Lengths: 300 to 600 metres on special metal
spool in film can.

Running times

Film length 1 in metres for various running times t for 35 mm. and 17.5 mm. normal film (cine and magnetic film), 24 f. p. s. corresponding to a running speed of 45.6 cm./sec.

t in min.	1	2	3	4	5	6
1 in metres	27.3	54.7	82.1	109	137	164

t in min.	7	8	9	10	11	12
1 in metres	192	219	246	273	300	328

4. Agfa magnetic stripe solution

for applying magnetic sound stripes to films. In aluminium bottles containing 250 gm.

5. Reference tapes to comply with German standard DIN 45 513

Reference films to comply with German standards DIN 15 538 and 15 638

Agfa supply reference tapes for speeds of 30, 15, $7\frac{1}{2}$ and $3\frac{3}{4}$ i.p.s., also reference films for magnetic film sizes of 35, 17.5 and 16 mm.

With these tapes and films, the volume and frequency response of the playback channel can be set and the gap of the sound head adjusted. The same standard of reproduction quality can then be achieved for programme exchanges on any apparatus.

The blank, unrecorded part of the reference tape complying with German standard DIN 45 513 consists of a normal tape established by the Subcommittee for Magnetic Sound Technique in the FNE, in which the sensitivity, position of the sensitivity maximum and frequency response are defined. For class 76 this unrecorded part is Agfa F tape 2851, for class 38 the FR tape 6004. It is used for setting the volume and frequency response of the recording channel and for adjusting the gap of the sound head when comparative measurements have to be carried out. For practical purposes the recording channel can, of course, be adjusted with the type of tape used.

6. Balancing tapes — a new testing medium

These are provided with periodic interruptions of the magnetic coating and are used to test magnetic tape systems for symmetry of the high frequency erasing and pre-magnetising currents and the freedom from remanence of the magnetic heads.

This testing medium combines very high measuring accuracy with simplicity in use without additional aids. A listening check alone is sufficient to judge the condition and quality of the system from the sound produced by breaks in the magnetic coating.

Formats: 6.25 mm. or 35, 17.5 and 16 mm. as tape loops.

7. Special tapes

Agfa PEK magnetic tape

For application to non-magnetic bases such as paper, plastics, textiles, metals etc. by the hot sealing method.

Agfa PET magnetic tape

For amplitude and frequency modulation (electronic calculating machines, machines for accumulating data, geophysical measurements).

Agfa PEV magnetic tape for controlling machines

Agfa adhesive magnetic tape (FR and PE 41)

for applying magnetisable coatings to any desired support.

Agfa magnetic endless loop

For maximum continuous stress (disturbance recorder, continuous announcement and echo apparatus etc.).

Agfa Video magnetic tape
for recording television pictures and sound.

8. Accessories

Cutter kit

Contents: 25 metres each of red, green and white leader tape; 10 metres of silver stop-tape, 10 metres of adhesive tape, scissors, splicing template.

Leader tape

Red, green, white, yellow, blue, grey.
Lengths: 250 and 25 metres

Adhesive tape

Width 5.8 mm., lengths 25 and 10 metres.

Splicing template

Adhesive tape, perforated

Widths 35, 17.5 and 16 mm.
Length 25 metres.

Silver stop-tape length 10 metres.

Scissors, antimagnetic, straight

Tape clips, packet of 25

Empty storage cartons for spools

Nos. 8, 11, 13, 15, 18, 22 and 25

Empty plastic cassettes for spools

Nos. 13, 15 and 18

Empty spools

Nos. 8, 11, 13, 15, 18, 22 and 25

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